### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau



# 

(43) International Publication Date 6 October 2005 (06.10.2005)

**PCT** 

(10) International Publication Number WO 2005/093387 A1

(51) International Patent Classification<sup>7</sup>: G01F 23/22, A01J 7/00

G01N 1/10,

(21) International Application Number:

PCT/NZ2005/000058

(22) International Filing Date: 29 March 2005 (29.03.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

531794

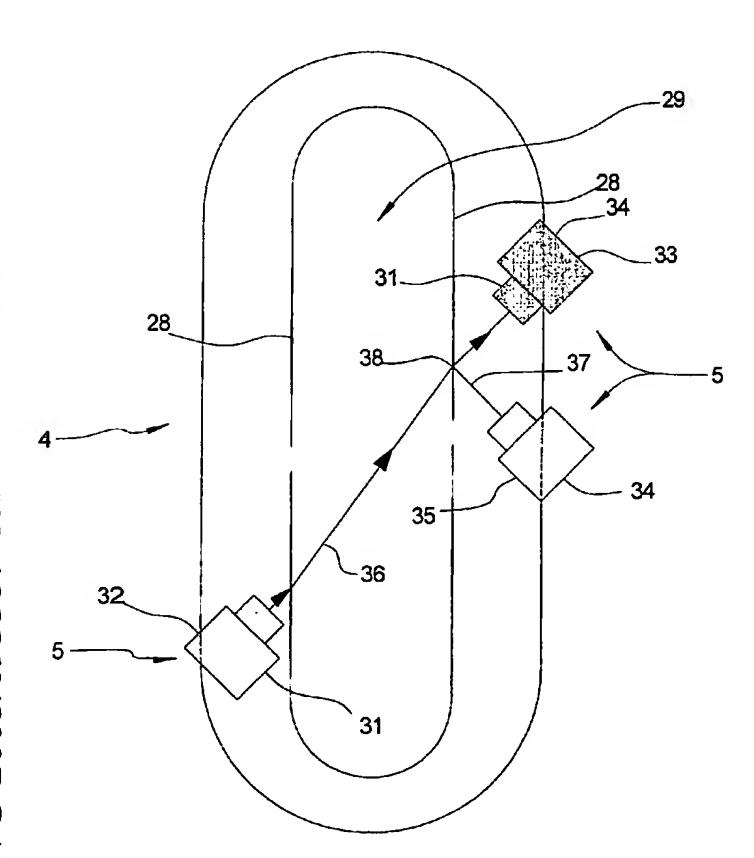
25 March 2004 (25.03.2004) NZ

(71) Applicant (for all designated States except US): SEN-SORTEC LIMITED [NZ/NZ]; Waikato Innovation Park, Ruakura Road, 2001 Hamilton (NZ).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): CROSS, Peter, Stephen [NZ/NZ]; 14 Brookfield Street, Hamilton (NZ). FRIETSCH, Thomas [NZ/NZ]; 25 Brookfield Street, Hamilton (NZ). WILSON, Allan, Walter [NZ/NZ]; 377 Rotokauri Road, RD 9, Hamilton (NZ).
- (74) Agents: CABLE, Andrew, J. et al.; Level 11, PricewaterhouseCoopers Centre, 119 Armagh Street, PO Box 2201, Christchurch (NZ).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,

[Continued on next page]

(54) Title: SAMPLING SINGLE PHASE FROM MULTIPHASE FLUID



A sampler (1) for (57) Abstract: extracting sample volumes of substantially single-phase fluid or gas from a fluid-flow system containing multi-phase fluids (3), said sampler (1) including; a collection recess (4) adapted to separate substantially single-phase fluid from said multi-phase fluid (3); an extraction outlet (8) in said collection recess (4); at least one fluid sensor system (5) capable of sensing the presence and/or state of said single-phase fluid or gas in the collection recess (4), a fluid controller (6) capable of controlling fluid or gas flow from the collection recess (4) via said extraction outlet (8), characterised in that said fluid sensor system (5) includes at least two distinct sensors respectively capable of utilising distinct properties of the fluid or gas to determine the presence and/or state of the sample volume present in the collection recess (4).

WO 2005/093387

#### 

TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.